

Amendment and Response Under 37 C.F.R. 1.116

Applicant: Robert L. Battey et al.

Serial No.: 09/812,158

Filed: March 19, 2001

Docket No.: 10961158-6

Title: ELECTRICAL AND FLUIDIC INTERFACE FOR AN INK SUPPLY

REMARKS

This Amendment is responsive to the Final Office Action mailed August 22, 2002. Claims 20 and 22-30 have been allowed. Claims 16-19 were rejected. With this Response, claim 16 has been amended. Claims 16-20 and 22-30 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

In the Office Action, claims 16-19 were rejected under 35 U.S.C. § 102(b) as being anticipated by the U.S. Patent 5,506,611 to Ujita et al. Ujita et al. in Figure 5 is said to disclose a replaceable ink container 21, 51 for use in an off axis printing system. The printing system is said to be responsive to electrical signals produced by the replaceable ink container for controlling printing system parameters. The replaceable ink container is said to have a leading edge (front wall of 51) defined as that edge of the replaceable ink container first received by the printing system. The replaceable ink container is said to include a plurality of electrical contacts 19a and 19b on the leading edge at a first side of the leading edge configured to engage electrical printer contacts 20a and 20b of the printing system. The ink container is said to further include a fluid outlet 15 on the leading edge that is directly opposite to the first side such that the fluid outlet is separated from the plurality of electrical contacts. The fluid outlet 15 is said to be in fluid communication with the ink container and configured to engage a fluid inlet 16 of the printing system. An information storage device is said to be electrically connected to the plurality of electrical contacts. The Examiner also detailed how Ujita et al. anticipates the subject matter of claims 17-19.

Applicants respectfully traverse the Examiner's rejection.

In Applicants' arguments filed May 6, 2002, it is pointed out that in Ujita et al., as plainly seen in Fig. 5, the ink supply portion 15 and the terminals 19a and 19b are disposed on adjacent sides (not opposite sides) of a leading edge of the ink cartridge 51. In addition, the ink supply portion 15 and the terminals 19a and 19b of the ink cartridge 51 of Ujita et al. are positioned next to one another and are not separated as set forth in independent claim 16.

In the Examiner's response to Applicants' arguments, the Examiner's position is that Ujita et al discloses a replaceable ink container (21, 51) wherein a plurality of electrical

contacts (19a, 19b) are disposed on a leading edge (front wall of 51) of the ink container (Fig. 5) at a first side of the leading edge (side of front wall on the left of 15), and a fluid outlet (15) is disposed on a second side of the leading edge (side of front wall on the right of said left side and containing 15) that is directly opposite to the first side (left and right sides are opposite to each other), such that fluid outlet is separated from the plurality of electrical contacts (15 is separated from 19a, 19b). Even though the left and right sides of Ujita et al. may be adjacent sides, they are directly opposite to each other in the sense that one is on the left whereas the other is on the right.

Independent claim 16, as amended, is directed to a replaceable ink container for use in an off axis printing system that is responsive to electrical signals produced by the ink container for controlling printing system parameters. The replaceable ink container has a leading edge defined as that edge of the ink container first received by the printing system. The replaceable ink container includes a plurality of electrical contacts on the leading edge at a first side of the leading edge. The plurality of electrical contacts are configured for engaging a plurality of corresponding electrical printer contacts of the printing system. The replaceable ink container further includes a fluid outlet on the leading edge at a second side of the leading edge, **wherein the first side and the second side are positioned adjacent opposite ends of the leading edge**, such that the fluid outlet is separated from the plurality of electrical contacts. The fluid outlet is in fluid communication with the replaceable ink container and is configured to engage a fluid inlet of the printing system. An information storage device is electrically connected to the plurality of electrical contacts.

By disposing the fluid outlet and the plurality of electrical contacts at opposite ends of the leading edge, the fluid outlet and the plurality of electrical contacts of the ink container are separated so as to virtually eliminate the possibility that a fluid leak at the fluid outlet would contaminate the plurality of electrical contacts. A replaceable ink container of this type is not taught, disclosed or anticipated, either explicitly or implicitly, by Ujita et al.

Ujita et al. is directed to an ink jet recording apparatus 53. As seen in Fig. 5, the ink jet recording apparatus 53 includes an ink cartridge 51 removable mountable to a connecting device 52 of the ink jet recording apparatus 53. The ink cartridge 51 includes a housing 12 that houses a flexible ink bag 13 for containing a supply of ink. An ink supply portion 15 is connected to the ink bag 13 via a conducting tube 15a. The ink jet recording apparatus 53

includes a hollow ink needle 16 installed in the connecting device 52. The ink needle 16 is received by the ink supply portion 15 to supply ink from the ink cartridge 51 to the ink jet recording apparatus 53. The ink cartridge 51 further includes a resistor 19 having information. Terminals 19a and 19b on the ink cartridge 51 are connected to the resistor 19. The terminals 19a and 19b engage pin terminals 20a and 20b on the connecting device 52 so that a control circuit of the ink jet recording apparatus 53 can read the information on the resistor 19.

Clearly, Ujita et al. does not disclose **a replaceable ink container wherein a plurality of electrical contacts are disposed on a leading edge of the ink container at a first side of the leading edge, and a fluid outlet is disposed on a second side of the leading edge, wherein the first side and the second side are positioned adjacent opposite ends of the leading edge, such that fluid outlet is separated from the plurality of electrical contacts,** as set forth in amended independent claim 16. In Ujita et al. as plainly seen in Fig. 5, the ink supply portion 15 and the terminals 19a and 19b are disposed adjacent the same end of a leading edge of the ink cartridge 51, and are not positioned adjacent opposite ends of a leading edge of the ink cartridge 51. In addition, the ink supply portion 15 and the terminals 19a and 19b of the ink cartridge 51 of Ujita et al. are positioned immediately adjacent to one another and are not separated as set forth in amended independent claim 16. By disposing the fluid outlet and the plurality of electrical contacts at opposite ends of the leading edge, as claimed in amended independent claim 16, the fluid outlet and the plurality of electrical contacts of Applicants' ink container are separated so as to virtually eliminate the possibility that a fluid leak at the fluid outlet would contaminate the plurality of electrical contacts. In Ujita et al. because of their close proximity, a fluid leak at the ink supply portion 15 would almost certainly contaminate the terminals 19a and 19b thereby making the ink jet recording apparatus 53 of Ujita et al. inoperable.

For the reasons set forth above, Applicants believe that Ujita et al. does not disclose, teach or anticipate, either implicitly or explicitly, what is claimed by Applicants in amended independent claim 16. Hence, Applicants believe that the rejection of independent claim 16 under 35 U.S.C. § 102(b) has been overcome and should be withdrawn. Such action is respectfully requested.

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Dependent claims 17-19 are directly or indirectly dependent upon amended independent claim 16. As discussed above, it is believed that amended independent claim 16 is now in condition for allowance. Therefore, consideration and allowance of dependent claims 17-19 is also requested.

Allowable Subject Matter

The Examiner has indicated claims 20 and 22-30 are allowed. Applicants respectfully acknowledge the Examiner's allowance of those claims.

In light of the above, Applicant believes independent claim 16 and the claims depending therefrom, are also in condition for allowance. Allowance of these claims 16-19 is respectfully requested.

CONCLUSION

Applicants believe that with this Amendment and Response, all claims 16-20 and 22-30 are in condition for allowance. Notice to that effect is respectfully requested.

Attached hereto is a marked-up version of the changes made to the specification and/or the claims by the current Amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**".

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Any inquiry regarding this Amendment and Response should be directed to either Matthew B. McNutt at Telephone No. (512) 343-7440, Facsimile No. (512) 343-7402 or Kevin B. Sullivan at Telephone No. (858) 655-5228, Facsimile No. (858) 655-5859. In addition, all correspondence should continue to be directed to the following address:

Hewlett-Packard Company
Intellectual Property Administration
P.O. Box 272400
3404 E. Harmony Road, M/S 35
Fort Collins, Colorado 80527-2400

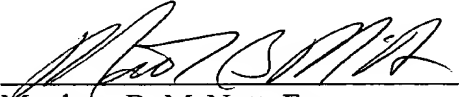
Respectfully submitted,

Robert L. Battey et al.,

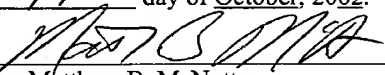
By their attorneys,

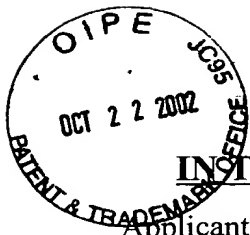
DICKE, BILLIG & CZAJA, P.A.
701 Building, Suite 1250
701 Fourth Avenue South
Minneapolis, MN 55415
Telephone: (612) 573-2000
Facsimile: (612) 573-2005

Date: Oct 17, 2002
MBM:cmj/kle


Matthew B. McNutt, Esq.
Reg. No. 39,766

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Box AF, Commissioner for Patents, Washington, D.C., 20231 on this 17th day of October, 2002.

By 
Name: Matthew B. McNutt



EXPEDITED PROCEDURE
Examining Group Number 2861

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Robert L. Battey et al.

Examiner: Michael P. Nghiem

Serial No.: 09/812,158

**VERSION WITH MARKINGS
TO SHOW CHANGES MADE**

Group Art Unit: 2861

Filed: March 19, 2001

Docket No.: 10961158-6

Title: ELECTRICAL AND FLUIDIC INTERFACE FOR AN INK SUPPLY

AMENDMENT AND RESPONSE UNDER 37 C.F.R. 1.116

Box AF

Commissioner for Patents
Washington, D.C. 20231

Dear Sir/Madam:

This Amendment is responsive to the Final Office Action mailed August 22, 2002.
Please amend the above-identified patent application as follows:

IN THE CLAIMS

Please amend claim 16 as follows:

16) (Amended) A replaceable ink container for use in an off axis printing system, the printing system being responsive to electrical signals produced by the replaceable ink container for controlling printing system parameters, the replaceable ink container having a leading edge defined as that edge of the replaceable ink container first received by the printing system, the replaceable ink container comprising:

a plurality of electrical contacts on the leading edge at a first side of the leading edge, the plurality of electrical contacts configured for engaging a plurality of corresponding electrical printer contacts of the printing system;

a fluid outlet on the leading edge at a second side of the leading edge ~~that is directly opposite to the first side~~, wherein the first side and the second side are positioned adjacent opposite ends of the leading edge, such that the fluid outlet is separated from the plurality of electrical contacts, the fluid outlet being in fluid communication with the replaceable ink container and configured for engaging a fluid inlet of the printing system; and

an information storage device electrically connected to the plurality of electrical contacts.

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17) The replaceable ink container of claim 16 wherein the leading edge defines a longitudinal axis with the first side and the second side being disposed on the longitudinal axis.

18) The replaceable ink container of claim 16 further including a latch feature, the replaceable ink container having an unlatched position and a latched position, wherein the latch feature is in engagement with corresponding engagement features of the printing system, the plurality of electrical contacts of the replaceable ink container are in engagement with the plurality of corresponding electrical printer contacts, and the fluid outlet is in fluid communication with the fluid inlet of the printing system.

19) The replaceable ink container of claim 18 wherein the latch feature is a pair of latch features, and wherein one latch feature of the pair of latch features is on the replaceable ink container adjacent to the first side and another latch feature of the pair of latch features is on the replaceable ink container adjacent to the second side.

20) A replaceable ink container for use with a printing portion of an off axis printing system, the replaceable ink container having a docked position, wherein the replaceable ink container is mounted to the printing portion so as to provide ink to the printing portion, and to provide the printing portion with electrical signals for controlling printing system parameters, the replaceable ink container comprising:

a fluid outlet portion for providing fluid to the printing portion, wherein the fluid outlet portion is mounted rigidly to the ink container and is configured for engaging corresponding guiding features of the printing portion that align the fluid outlet portion with corresponding fluid inlet portions of the printing portion; and

an electrical interface portion defined by a cavity within an outer surface of the replaceable ink container, the cavity having a first inner surface defining an engagement portion and a second inner surface having a plurality of electrical contacts thereon for transferring the electrical signals between the replaceable ink container and the printing portion, the engagement portion being separated from and positioned opposite to the plurality of electrical contacts, wherein the electrical interface portion in the docked position engages

guiding features of the printing portion to position electrical contact portions of the printing portion between the engagement portion and the plurality of electrical contacts to electrically engage the replaceable ink container with the printing portion without applying a force to the replaceable ink container that would affect engagement of the fluid outlet portion with the corresponding fluid inlet portions of the printing portion.

21) (Canceled)

22) The replaceable ink container of claim 20 wherein the fluid outlet portion is disposed on the outer surface of the replaceable ink container.

23) The replaceable ink container of claim 22 wherein the outer surface of the replaceable ink container is a leading edge defined as that edge of the replaceable ink container first received by the printing portion.

24) The replaceable ink container of claim 23 wherein the leading edge has a longitudinal axis and a lateral axis perpendicular to the longitudinal axis, and wherein the longitudinal axis bisects the fluid outlet portion and the cavity defining the electrical interface portion.

25) The replaceable ink container of claim 24 wherein the fluid outlet portion is at a first end of the longitudinal axis and the cavity defining the electrical interface portion is at a second end of the longitudinal axis opposite the first end.

26) A replaceable ink container for use in an off axis printing system, the printing system being responsive to electrical signals produced by the replaceable ink container for controlling printing system parameters, the replaceable ink container comprising:

a leading edge defined as that edge of the replaceable ink container first received by the printing system, the leading edge having a longitudinal axis and a lateral axis perpendicular to the longitudinal axis;

an electrical interface portion having a plurality of electrical contacts for transferring the electrical signals between the replaceable ink container and the printing system, wherein

the electrical interface portion is a cavity within the leading edge of the replaceable ink container, the cavity being bisected by the longitudinal axis and having an inner surface with the plurality of electrical contacts thereon such that the plurality of electrical contacts are configured for engaging a plurality of corresponding electrical printer contacts of the printing system; and

a fluid outlet on the leading edge such that the longitudinal axis bisects the fluid outlet, wherein the fluid outlet is separated from the cavity defining the electrical interface portion, with the fluid outlet being in fluid communication with the replaceable ink container and configured for engaging a fluid inlet of the printing system.

27) The replaceable ink container of claim 26, and further including:

an information storage device electrically connected to the plurality of electrical contacts.

28) The replaceable ink container of claim 26 wherein the fluid outlet is configured to receive fluid inlet of the printing system along a fluid interconnect axis, and wherein interengagement of the electrical interface portion with the corresponding electrical printer contacts of the printing system is free from any forces acting on the replaceable ink container in a direction perpendicular to the fluid interconnect axis.

29) The replaceable ink container of claim 26 wherein the electrical interface portion is fixed to the replaceable ink container and the corresponding electrical printer contacts of the printing system float on the printing system.

30) The replaceable ink container of claim 26, and further including:

a latch feature, wherein the replaceable ink container has an unlatched position and a latched position, in the latched position the latch feature is in engagement with corresponding engagement features of the printing system, wherein the plurality of electrical contacts of the electrical interface portion engage the corresponding electrical printer contacts of the printing system, and wherein the fluid outlet is in fluid communication with the fluid inlet of the printing system.